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CLINICAL LECTURES.

ON ASTIGMATISM AS A CAUSE FOR PERSISTENT HEADACHE AND OTHER NERVOUS SYMPTOMS.

A Clinical Lecture Delivered at the Hospital of the Jefferson Medical College.

BY WILLIAM THOMSON, M.D.,
Lecturer on Diseases of the Eye at the Jefferson Medical College.

GENTLEMEN: More than ten years ago I became aware that persons who consulted me for imperfect sight presented symptoms not fairly described in the various text books under the general head of asthenopia, and indicative of some serious disturbance of the nervous centres. These may be enumerated as pain over the brows, in the temple, occipital region of one or both sides, and vertex, with a sense of fullness, amounting to vertigo and nausea; mental depression and irritability of temper, inability to apply the mind, as in reading and writing; insomnia, loss of appetite, a fear of some impending apoplexy, or epilepsy, general nervous prostration, and, occasionally, choreic twitching of the muscles of the head and face. Finding these persons astigmatic, and seeing that their symptoms yielded to the supporting effect of properly selected cylindric glasses, the attention of Dr. S. W. Mitchell was called to this aspect of these sufferers, some of whom had been under his own care, and to him belongs the credit of calling the attention of the general profession to the subject in a paper in the *Medical and Surgical Reporter*, in 1874, and in the *American Journal of the Medical Sciences*, in 1876. Since these persons may be ignorant that they have defective eyes, they seek the advice of the general physician, rather than that of the ophthalmic surgeon, and to Dr. Mitchell's kindness I owe the opportunity of treating very many of these interesting cases to a successful conclusion; and a very large experience in private and hospital cases enables me to claim for such sufferers a careful examination, and the full correction of any optical defects that may be found, as indispensable to the relief of their many woes.

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To describe astigmatism I must be pardoned a word as to the optical defects. The ideal eye, which may do all its work without our consciousness, must be a camera so formed that it receives on its retina the images of distant objects sharply defined; it must possess a perfectly curved cornea and crystalline lens, the distance from the apex of the cornea to the retina at the yellow spot, must be $\frac{9}{10}$ inch in length, and when these mechanical qualities are realized, sight for objects beyond twenty feet may be said to be automatic, and dependent upon sensation alone. Such an eye in viewing near objects must possess, however, the power of accommodation, and this is obtained by the grasping effect which the ciliary muscle can exert upon the elastic lens, under the power of volition transmitted through the third nerve. When two such eyes are used together, the third nerve of each side is used to excite contractions not only in the ciliary muscles, but also in the superior, internal, and inferior straight, and the inferior oblique muscles. Hence the eye possesses a power of prehension which must be vigorously used in obtaining accommodation and convergence when the person reads small print, or uses the eyes on other near small objects.

When a greater distance than $\frac{9}{10}$ in. exists between the front and back of the eye it becomes myopic, is not able to distinguish distinctly distant objects, and has too much power of refraction, which can be reduced by a concave or — glass placed before it. When the antero-posterior distance is less than $\frac{9}{10}$ in. it is called hypermetropic, and needs a convex or + glass for its correction; the glasses in each case indicating the degree of the optical defect. The perfect eye is called Emmetropic E, the other myopic M, or hypermetropic H.

In astigmatism these conditions may exist in various quantities, together, and the eye may see one part of an object and fail to see the other; it may see the vertical part of a letter T, for example, or the two sides of an O, and be unable to obtain perfect sight of the horizontal parts without some muscular effort, or change of distance.

A person who could see vertical lines with the E part of an eye at twenty feet distance, might have M for horizontal lines and would not see them until the eye had been carried by the organs of locomotion to a distance of twenty inches, when they would become distinct with the eye in repose, but the vertical lines would then need the prehensile power of accommodation to place them clearly on the retina, and a constant contraction and relaxation of these intricate muscular organs would be needed to secure good definition. Such an eye in repose could see such lines only when they were placed in perspective—the horizontal at 20 inches and the vertical at 20 feet, but when placed as letters are on the same piece of paper, they would yet for such an eye be apart, and the eyes would metaphorically labor in passing over a line of print as much as the legs would in walking over broken ground; and the same relief would come from a proper correction to such eyes by glasses as would follow a transition from a plowed field, or a road covered with large obstacles, to a hard level pathway.

Test glasses, which to obtain uniformity, are based on the metric system, are being gradually introduced and used by ophthalmic surgeons throughout the world, and are based upon a unit of 1 metre in the refractive power, and the glass No. 1 is a +, or convex glass, having a focal length or burning point of one metre, and is called a dioptric. The test cases contain these glasses ranging in power from .25 or $\frac{1}{4}$ of a dioptric = more than 13 feet focus, to 20 diop. or nearly 2 inches focus, and are spherical and cylindric in their curves, both convex and concave.

The power of the glass, and the degree of any optical defect may be easily comprehended if we regard the similarity between these dioptrics and our coinage, since the weak .25 is like our 25 cent-piece, and the glasses gradually increase until they are as strong as a twenty dollar-piece in glass of 20 D. The power of accommodation can be well understood in like manner, since we know that when an E eye looks at things at twenty feet and beyond it uses no accommodation, and if the person is young, say under

twenty years of age, a page of print may be seen distinctly until it reaches a distance of four inches from the eye; and that the same effect can be produced by muscular pressure on the lens through the ciliary muscle that could otherwise be obtained by a + glass of 10 D, since a metre is = nearly 40 inches and 4″ is the $\frac{1}{10}$ of this quantity; hence when we read at any distance, say 10 inches, we know that we are using a power of 4 D on each eye to secure good definition. To this must be added the muscular strain which must also be exerted to converge and fix the eye balls by means of the third nerves acting upon the other above mentioned extra-ocular muscles. These explanations I hope will rob the clinical details of any reported cases of any difficulty, and will enable the reader to estimate the degrees of the defects which may have to be concealed or overcome by vigorous muscular contractions in getting clear vision of either far or near objects, since in all eyes of H type the sight for distant things is obtained by using accommodation, and thereforefore more than the usual strain must be also employed in such eyes for all near work.

It may be in brief assumed that the eyes must be either emmetropic naturally or must be rendered so by glasses, if we hope to get from them prolonged near use, since when such eyes are viewing distant objects they are in muscular repose, and see by the sensory part of the eye alone, and thus give the motor, muscular, and prehensile parts time to rest between their intervals of active use in grasping the objects that are to be clearly seen at a near point. Fatigue and pain then come greatly from an unintermitted use of the accommodation, and converging apparatus, in using eyes of imperfect construction; and if we can save that very unnecessary labour we give muscular repose, and apply to the jaded eye a mechanical treatment which common sense and the keenest physiological insight will both approve.

Case I.—Dr. F., age 34, struggled through his education with constant fatigue and headache, and consulted me in 1869, ten years ago; he had been corrected by a prominent ophthalmic surgeon, and was using

$$\begin{matrix} R -1.5 \bigcirc -2c. \\ L -1.5s \end{matrix} V = 20 \left| \frac{xxx}{cc.} \right. \text{ or } 1 \left| \frac{11\frac{1}{2}}{10} \right.$$

No atropia had been used to paralyze his accommodation, and the astigmatism in the left had not been detected, whilst in the right, as will be seen by my result, he had overstated his optical defect, and had been much over-corrected, and indeed rendered by his glasses even hypermetropic. He saw well with only one eye, and suffered great fatigue in reading, for which he found even this poor correction better than the eyes alone. In reading he was obliged to place his page within ten inches without glasses.

A careful study of each eye revealed simple M in one meridian, and E in the other, and both eyes were brought up to full or perfect distant sight, viz., $\frac{20}{xx}$, by the following formula:—

R —2.5c. axis 180°
L —2c. " 165°

Serious changes in each choroid near the fovea and nerve entrance were also observed, and to arrest them and to afford relief from pain, he was directed to use his glasses constantly. Please observe the practical obstacles in this case in using the natural eye. This gentleman saw at twenty feet the vertical parts of test letters, the horizontal looking rubbed, as if the ink had been smeared over the paper when it was yet fresh, and this defect reduced his vision to $\frac{1}{10}$, *i. e.*, a letter could be distinguished only when it was ten times larger than it need be for the same eye corrected. When he placed his eye at a distance of 16 inches from a horizontal line, it only then became distinct, becoming blurred beyond. When two lines, one vertical and the other horizontal, were placed at 16 inches, or when he saw clearly both parts of a letter T or H, he was obliged to use for the vertical part an accommodative strain = a glass of 2.5 D, which might tire an eye as the lifting of 2½ lbs. would the arm. When this 2.5 of A had been secured by pressure upon the lens, the refraction for the horizontal line would be too great for perfect sight at 16 inches, and the dis-

tinct point for that line would optically be at about 8 inches; so that a distance of 8 inches would exist between the two parts of a rectangular letter. Finding it impossible to shift the position of two lines by movements of the hand or head, placing vertical ones at 16 inches, horizontal ones at 8 inches, he would endeavour to perform the same service by first contracting the ciliary muscle for the vertical, and using A = 2.5 D, and then relaxing it when the attention should be called to the horizontal line.

Imagine how tiresome such guarded careful adjustments would be with an opera glass made astigmatic purposely, and then consider that a person in reading must be ready to follow instantly any possible line which the printer or engraver may dictate, and you can perceive that to read with such an eye would be like endeavouring to see any details either on the surface of a tank of water, or at its depth of 8 inches, when the eye should be placed 8 inches from its surface, and directed downwards. Please remember also that when both eyes were converged and properly accommodated for 16 inches, that a new convergence would be needed for 8 inches, and you will get a mechanical idea of the muscular activity that would exist in a pair of such eyes, in following details of small type over the lines of a book, both third nerves directing not only the ciliary muscles, but also the whole group of extra-ocular muscles in exacting and guarded contractions and relaxations. No wonder that fatigue should follow, congestion, inflammation of the lids, and conjunctiva, nutritional changes in the fundus, and neuralgic pains over the frontal region, throughout the head, and even vertigo, and nausea.

For ten years these symptoms have been entirely removed by the glasses; no change has occurred; the V is the same; there is full power to use the eyes by day or night in near work; my patient performs all the duties of an active practitioner, and has enjoyed entire comfort. He cannot leave off his correcting glasses for five minutes without a return of pain, and a sense of fatigue. When his accommodation fails after 45 years of age, he may return for some further advice, and I will then order a + spherical on one side of his cylindrical correction for reading.

His cylindrical glasses are for his eyes simply what a cork jacket might be if he were thrown into the water; there would be no necessity for the severe muscular effort of swimming to keep his head above the surface, and he could float along in repose. I see this patient frequently, but have never heard him express but one opinion as to his eyes, that they are perfectly comfortable, and that all his old symptoms have long since disappeared—a result which he largely owes to his own professional knowledge and willingness to keep his glasses on his eyes properly whenever he is not asleep.

Case II.—Mr. C., age 36, first seen in 1870, has been under treatment for supposed disease of the brain and spinal cord by distinguished men here, in New York, and in several cities in Europe; has been in the hands of irregular practitioners of every school, but has never found any treatment of any avail. He states briefly that he is never well, except when leading an out-door life, shooting, fishing, etc., and that so soon as he returns to business his head symptoms return. He found by accidently using a — cylindric glass of a friend that he could see more sharply, and he consulted a distinguished ophthalmic surgeon, who, without having any other end in view, gave him — 2c on each eye, with which he has V nearly $\frac{20}{xx}$, but is not able to use the correction in reading or near use of the eyes. For over a year all his letters have been written by a secretary, by dictation, except his notes to his family, which he writes when absent with a dull lead pencil, in a large hand, and barely glancing at the paper. He is now under Dr. Mitchell's care, and consults me only to get a distant glass to enable him to shoot more accurately, thinking himself nearsighted. The least use of the eyes in his business, in examining anything which he takes in his hand, gives discomfort, so that he never exerts himself in that way more than a few minutes at a

time; and as his headache from his over-sensitive condition is increased by any excitement, emotion, or mental effort, he naturally ascribes his state to some serious disease of his brain. He states that after writing a few minutes he feels a creeping sensation extending along the spine from the shoulders to the back of the head; his hair seems to be rising up; he becomes giddy; severe pain ensues; his ideas become confused; he feels sure that he will have some "fit of some kind;" he throws down his pen, leaves his desk, goes into the open air, and in time these symptoms disappear. He has no faith when told that his suffering probably depends upon eye strain, but is willing to give every opportunity for a thorough examination.

His acuity of vision, $V = \frac{R\ \frac{1}{3}}{L\ \frac{1}{3}}$, increased by the — cylinders he now has to nearly $\frac{1}{1}$, but I feel sure that he has not only a myopic astigmatism, but that there is also hypermetropia. This is concealed now by the use of accommodation, with which he corrects a H meridian, and hence overstates the degree of M. The accommodation was paralyzed by atropia, and his entire ametropia, or optical defect, corrected by a convex or + spherical glass combined by a concave or — cylindrical, to overcome the astigmatism.

The following formula gave him $V = \frac{20}{xv}$, or above the average amount, viz.,

R + 1 ⊖ — 3c.
L + 1 ⊖ — 3c. Axis 180°, or horizontal.

These glasses gave clear, exact definition upon his retina of objects at and beyond twenty feet, and his brain received all its impressions through the sense of touch alone, whilst before using atropia to paralyze the ciliary muscle, the motor or prehensile muscular apparatus was compelled to co-operate incessantly, and fatigue necessarily ensued. These glasses he was directed to wear constantly. When his eyes recovered from atropia, he saw accurately with eyes in repose for distance, and could use A enough to read at 6 inches from the eye. All his nervous symptoms at once disappeared, and he has been free from them for years, except when by the usual mischances he gets his glasses improperly ground, or placed before the eyes.

It needed only one experiment to test the value of the correction in his case, and that I was of course unwilling to try, viz., to leave off, or impair by intention the fulness of his correction. This was done, however, by accident, in the following way:—

Recently, after nine years of comfort, he arrived at the period when old sight comes to us all, at about forty-five years of age, and finding himself labouring in reading at night with his far correction, I prescribed a formula which would give an ordinary pair of old glasses with the astigmatic ones. I gave + 2 ⊖ —3c. ax. 180° on each eye. This formula he took to Paris, and ordered from a celebrated maker a pair to be constructed of pebble instead of glass. The optician, thinking he could grind the lenses more conveniently than by following explicitly my formula, undertook to arrange the quantities differently, and ground other curves than those ordered on each side of his glasses. Mr. C. brought them home, placed them on his eyes, and endeavoured to use them in writing, when, although he saw clearly with them, his old symptoms of congestion returned so severely, time after time, that he was compelled to hold his head under a cold water douche to obtain relief. He then consulted me very recently, the error was discovered, that the glasses yet left him with a part of his astigmatism not corrected; a second pair were made from the proper formula, and again all his fatigue and headache disappeared. No better testimony could be needed than this experiment which chance provided for us, to satisfy us that his nervous symptoms had not been removed by any effort of nature or natural improvement in eyes or brain, but that they had been averted for years by an ingenious mechanical support applied to a defective organization.

Case 3.—Dr. G. M. S., age 39. "Was a medical officer in the navy, and in 1866, after exposure to malaria, he suffered from pain at the base of the brain, singing in

left ear, mental restlessness, inability to apply his mind, pain over left brow extending to back of head, with a feeling of severe tension; was then reading a good deal, but after twenty minutes he could not keep his attention fixed, and thought this a failure of mental vigour." He left the navy on this account, after failing to get relief, through the advice of several distinguished men, and went to Minnesota and spent a year in open-air life, avoiding all books and newspapers. He then felt relieved, returned to work in civil practice, avoiding much reading, but in 1868 his symptoms returned, with much anxiety as to his power to sustain himself. His general health seemed good enough, he was an athlete, and could lift one thousand pounds, but was convinced that he laboured under some form of disease of the brain. Without any change he remained until 1872, when his case was diagnosticated by a great authority in disease of the nervous system, as cerebral congestion, and was treated by the latest novelties in therapeutics. Taking some interest in eye diseases, whilst under treatment for some months in New York, he was given glasses which improved his distant sight, but no thorough examination was made. In 1875 he spent some time in Colorado, to escape work and live in the open air. The light gave him much distress, and there were developed the signs of nervous headaches or megraine, marked by the coloured subjective flashes of light in the eyes, arranged in zig-zag lines, lasting half an hour, followed by severe hemicrania, loss of sight in the half of each visual field, and nausea. During the past year he has had probably twelve such attacks. Upon consulting Dr. Mitchell, he referred him to me, hoping that some form of optical defect might be found to account for a part of his sufferings in Oct. 1878. His general appearance, and the fact that his symptoms have continued now since 1866, render any severe cerebral disease improbable. He can read for thirty minutes, but feels the strain after one minute; is compelled to desist by headache, which would culminate in nausea. $V = \frac{R}{L}\,20$ $\frac{L}{XL} = 1\Big|\frac{2\frac{1}{2}}{2}$, with atropia and paralyzed accommodation, V = only $\frac{20}{cc} = \frac{1}{10}$, and this is the only visual power he possesses without strain. The result of the examination was to develop here, as in the preceding case, a combination of H and M, which the formula will explain—

R + 2. ◯ — 8c. ax., 170° V = $\frac{1}{1}$,
L + 1.75 ◯ — 2.5c. " 5° V = $\frac{1}{1}$.

So that, without any muscular effort on his part, his sight was increased tenfold by the correction, or from $\frac{20}{cc}$ to $\frac{20}{xx}$.

In December last he writes that, with the glasses, "I can now engage my eyes in constant work for half a day at a time, without the distressing hemicrania and fatigue which was certainly consequent upon such effort, continued not over one hour. The glasses are an inestimable boon," etc. He also states that he has had but one attack of nervous sick headache, and that not so violent as on former occasions.

This gentleman was corrected under great pressure for time, and would be benefited by some further advice, but I feel sure that most of his fancied cerebral symptoms have entirely disappeared, and that his nervous headaches will be lessened in number and severity, although it must be remembered that this form of headache is probably inherited, and will prove as intractable to the use of glasses as it has hitherto done to skilful medication. So satisfied was Dr. Mitchell as to the cause of the distress in this case, that he gave no treatment beyond advising him to follow closely the instructions which were given as to the use of his correction.

On May 19 a letter, introducing a patient who suffers from eye-strain, contains the last report from Dr. S. He says: "My cylindrical lenses have lightened and rendered comparatively painless many hours of labour since using them."

In contrast with these very marked cases of nervous trouble and defective sight, I will give, as interesting, from its insidious character—

Case 4.—Mrs. W., age 44, Nov. 11th, 1874. For three years past prolonged

sewing would cause a sick headache; has almost given up the near use of eyes in sewing or reading in consequence, $V = \frac{R}{L}\ 20\ \frac{xx}{xxx}$; slight chronic conjunctivitis. Finding that she could not see within 12 inches, and would accept + glasses, I prescribed spherical glasses of 1.25 D, and astringent lotion for the hyperæmia.

Dec. 20. Has used the glasses nearly constantly, reads longer, but yet has pain throughout the entire head, particularly in the occipital region.

Jan. 12. No improvement. The spherical glasses fail to give relief.

Jan. 19. Use atropia, which reveals simple H. Vision with no glass $= \frac{20}{LXX}$ restored by +1.25 to $\frac{20}{xx}$ Right. For Left find H and A; under atropia $V\ \frac{20}{LXXX}$; corrected to $\frac{20}{xx}$ by + .75s. ⊂ + 1c. ax. 80°.

R + 1.25s. V $\frac{1}{1}$.

L + .75 ⊂ + 1c. ax. 80 V $\frac{1}{1}$.

May 6. Has used glasses constantly, and is entirely relieved of the dragging pain in back of neck and head; has been able to sew longer than for years. No further treatment.

Dec. 1876. Returns with statement, that has had headache day and night for some weeks, located in each eyeball, over the brows, and in the nape of neck. She has lost her appetite; there is general nervous prostration; she sleeps badly, and is so irritable and sensitive as to render any examination very difficult.

Alarmed and disappointed at this return of her pain, in spite of careful correction, I was wondering what next to do, when, glancing through her correction held in my hand, I perceived that the glasses had been changed—the R., which was a plain S., being now in the left side of the spectacle frame, and over the astigmatic eye, which it could not correct; and the sphero-cylinder belonging to the Lt. being now placed over the Rt., which was not naturally astigmatic, but is now rendered so by the accident. In fact, the patient now suffers from two astigmatic eyes instead of one. She knew of no change, and insisted that the glasses had not been tampered with; but on closely questioning her, she remembered that in the summer the frames had been broken, had been sent to be repaired, and no precautions had been taken to call attention to their cylindrical character; hence, the person who repaired the frames had, by accident, furnished us with the very best evidence of the value of the correction, since, when the work of the autumn had been resumed, after a summer of rest, our patient using the glasses with full confidence, and having both eyes injured and not benefited by them, had all her old symptoms reproduced, and in greater violence. This having been explained, she had the glasses properly placed, and was again entirely relieved, and dismissed from observation in Jan. 1877. Since then I have been obliged to correct the old sight, but there has never been any headache from eye-strain. Twice she has had curious attacks of megraine, with intense subjective sensations of lights flashing continuously in each eye lasting for three hours, and culminating in sick headache, from drinking lemonade.

Case V.—Within a few days a young girl, Miss M., was brought to me by her mother, age about 40, and accompanied by her grandmother, over 70 years of age. For the past three winters this young girl had commenced school, but in a few weeks had been obliged to give up her studies, on account of severe pain which was felt in the back part of the left eye, attended by twitching of the muscles. Finding her sight nearly perfect, and observing no sign of disease on inspection of the eyes, I suspected astigmatism, and knowing how often this defect is transmitted by inheritance, I asked her mother, a delicate, pale, feeble-looking woman, if she suffered from headache; she responded that she had done so for years—but that it was neuralgic—had never been relieved by any treatment, but that it was congenital, as her mother had suffered in the same manner. This statement was confirmed by the grandmother, and I added that she had now been free

from pain for some years, to which she acquiesced. I then predicted that all three would be found to be astigmatic, and that the absence of pain in the grandmother was due to the fact that her accommodation had become so deficient from age that she could no longer force her eyes to render her sight sharp; the mother was informed that she would probably outgrow her neuralgic pain, but that it would now yield to proper glasses, and that the young girl would do no more serious work at school until her defect had been corrected. An examination was then quickly made, and these predictions were verified so far as the presence of astigmatism was concerned. The grandmother presented two such eyes, the mother was also astigmatic, and the young girl had her painful eye in a like condition. This is not surprising when we remember that astigmatism is generally caused by a slight malformation of the cornea, which consists in having its meridians of curvature irregular in length of radius, and that this peculiarity of formation might, and is frequently transmitted by inheritance, as readily as would any other physical peculiarity of structure. These cases have not been critically examined, and hence no details can yet be given.

I regret that in the space of a clinical lecture, and under the necessity of presenting the ideas conveyed in a rapid or rather informal manner, I can do no better justice to what seems to be an important and too little known advance in the treatment of cases presenting symptoms that might easily be confounded with those of serious disease of the nervous centres. Hundreds of cases, all more or less differing in the clinical details, have passed under my notice, and are recorded in my note books; and nothing but a full and candid investigation of each case will suffice to answer the objections that might be made to the views now presented. The asthenopia of hypermetropia is well described; also the fatigue and discomfort often attendant upon myopia, with its complication of insufficiency of the internal straight muscles, but the train of evils enumerated above belong especially to astigmatism, and will be found in those who endeavour to use such defective eyes in prolonged near work. When people with marked astigmatic refraction are found who have not suffered from eye strains and pains in the head, etc., it will generally be found that they have little inclination or necessity for prolonged near use of the eyes, since it seems that the symptoms are dependent upon that constrained and incessant use of the complicated muscular apparatus concerned in the accommodation, convergence, and proper binocular use of such defective organs. No success can be expected in correcting such eyes without the full use of atropia, or better duboisia, which will entirely paralyze the accommodation, and eliminate all power which the patient might have in concealing his defect; and finally great perseverance and great faith must be exercised by the patient in the constant use of the glasses, if the eyes are to be compared in comfort and working power with those of an emmetropic type. The most rapid test for the general practitioner to use to detect astigmatism is a small point of light, either a circular opening in an opaque screen, or a gas light turned down to a small yellow point, which must be regarded by the patient at not less than sixteen feet distant. Emmetropic eyes see this light as a small point, whilst to astigmatics it is distorted into a streak, of greater or less extent, which will change its direction as the patient rotates his head from a vertical to a horizontal direction. When myopia, or high degrees of hypermetropia are mingled with astigmatism, the light point may appear to be not a circular disk of light but an ellipse. The case then surely needs the prolonged and patient study requisite for its correction as the most rapid and safe means of treatment.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Proceedings of the American Medical Association.

(Specially reported for the MEDICAL NEWS.)

The thirtieth annual meeting of the American Medical Association was con-

vened at Atlanta, Georgia, on Tuesday, May 6th, 1879, Dr. Theophilus Parvin, of Indianapolis, President of the Association, presiding. Three hundred and fifty delegates were registered. The session was marked by an unusual amount of good feeling, sociability, and harmony. The old question about the Arkansas State societies reappeared; it was settled, it is to be hoped, permanently, by the Judicial Council deciding to recognize the delegation from the one known as the Arkansas State Association. The contemporaneous meeting of the National Board of Health in Atlanta gave the Association the benefit of the presence of a number of leading sanitarians, and procured for discussions on State medicine a prominent position in the proceedings.

General sessions for business were held each morning, when, besides the routine work, the chairmen of the different Sections in rotation each presented an address embodying the progress in his special department during the preceding year. In the afternoon the meeting was divided up into Sections, which were constituted as follows:—

Section I. *Practical Medicine, Materia Medica, and Physiology.*—Chairman, Dr. Thos. F. Rochester, of Buffalo, N. Y.

Section II. *Obstetrics and Diseases of Women and Children.* — Chairman, Dr. E. S. Lewis, of New Orleans.

Section III. *Surgery and Anatomy.*—Chairman, Dr. Moses Gunn, of Chicago.

Section IV. *State Medicine, Public Hygiene, and Medical Jurisprudence.*—Chairman, Dr. J. S. Billings, of Washington.

Section V. was consolidated with the preceding by resolution adopted at this meeting.

Section VI. *Ophthalmology, Otology, and Laryngology.* — Chairman, Dr. Hermann Knapp, of New York.

For scientific value, the discussions in the last Section, under the charge of Dr. Knapp, probably took the lead; those in the Section on State Medicine coming next; while those on Practical Medicine were decidedly below the average, and the Section was poorly attended. The Sections on Surgery and on Obstetrics had the largest numbers in attendance; but much better results could be obtained, and less time lost in reading unimportant essays, if all papers were submitted for examination to a committee of experts belonging to the Section, before being read as part of the proceedings.

General Sessions. — The meeting was called to order on Tuesday, May 6th, by the President of the Association.

The Address of Welcome was made by Dr. Logan, Chairman of Committee of Arrangements, and was followed by the Presidential Address, which was received with the closest attention and hearty applause. It was replete with thought, and revealed close attention on the part of the writer to the current literature of natural science.

Dr. E. Seguin offered resolutions in regard to the use of the metric system, which were subsequently adopted, declaring that the Association formally adopts the system, and will require, in future, its employment in all communications, and recommending its general use.

Second Day.—On the second morning a resolution was passed, though not without opposition, requesting Congress to remove the high tariff on quinia.

The Judicial Council having reported as a special committee an amendment condemning, as opposed to the code of ethics, the practice of instructing students who intend to practise an irregular or exclusive system of medicine, which was laid on the table.

Third Day. — Dr. N. S. Davis read a brief but pointed address on Ozone, which was referred for publication. Dr. J. M. Toner presented the report on Necrology, and H. C. Wood a report on the National Library, which were both received and ordered to be printed. Reports were also received from the Publication Committee, the Treasurer, and the Librarian. The Committee on Nominations reported as follows:—

President. — Lewis A. Sayre, M.D., of New York.

Vice-Presidents.—*1st.* R. Beverly Cole, M.D., of California; *2d.* E. M. Hunt, M.D., of New Orleans; *3d.* H. O. Marcy, M.D., of Massachusetts; *4th.* F. Peyre Porcher, M.D., of South Carolina.

Treasurer.—R. J. Dunglison, M.D., of Pennsylvania.

Librarian.—Wm. Lee, M.D., District of Columbia.

Committee on Library.—Johnson Eliot, M.D., District of Columbia.

Asst. Secretary.—Walter Gillette, M.D., of New York.

Next place of meeting, New York.

Time of meeting, First Tuesday in June, 1880.

Committee on Arrangements.—Drs. L. O. Vanderpoel, Stephen Smith, Wm. M. Polk, Robt. Weir, Chas. I. Pardee, A. A. Smith, T. F. Sabine, of New York; Jos. C. Hutchison, of Brooklyn; M. H. Burton, of Troy; and Dr. Parker, of Poughkeepsie.

Committee on Prize Essays.—Dr. Austin Flint, Chairman; Drs. Alfred C. Post, Jos. C. Hutchison, J. W. S. Gouley, and Montrose A. Pallen.

Committee on Publication.—Drs. W. B. Atkinson, T. M. Drysdale, A. Frické, S. D. Gross, Caspar Wister, R. J. Dunglison, all of Pennsylvania; and Wm. Lee, of District of Columbia.

The following are the nominees for officers of Sections for the next meeting:—

Section I.—Dr. J. S. Lynch, of Maryland, Chairman; Dr. W. C. Glasgow, of Missouri, Secretary.

Section II. — Dr. Albert H. Smith, of Pennsylvania, Chairman; Dr. Robert Battey, of Georgia, Secretary.

III. Dr. W. G. Briggs, of Tennessee, Chairman; J. Powell Adams, of Minnesota, Secretary.

Section IV. Dr. J. F. Hibbard, of Indiana, Chairman; Dr. T. E. Wood, of North Carolina, Secretary.

Section V. Dr. Bolling A. Pope, of Louisiana, Chairman; Dr. Eugene Smith, of Michigan, Secretary.

Committee on Necrology. — Dr. J. M. Toner, of District of Columbia, Chairman.

Dr. Brodie presented a communication from the Association of American Medical Editors, declaring it to be a violation of the spirit of the code of ethics for editors to advertise patent medicines, which was referred to the Judicial Council.

Dr. N. S. Davis, of Chicago, made a report from a special committee on questions discussed by President T. G. Richardson in his annual address of last year. It favoured amendment of the present rules on prize essays, and recommended the expunging from section 3 of all relating to prize essays, and the insertion of a clause declaring that there shall be four prizes of $250 for the best original contributions to medical knowledge. The chairmen of the sections on Practical Medicine, on Obstetrics, and Surgery and Anatomy, on State Medicine, shall take charge of the competition and arrange its methods. The report to lie over for action until next year under the rule. It was received and the committee discharged.

The Committee on Prize Essays awarded the prize to Allan McLane Hamilton, M.D., of New York, for a paper entitled "A Consideration of Certain Forms of Primary and Secondary (local) Degeneration of the Lateral Columns of the Spinal Cord, with Special Reference to an Infantile Rare Form."

Papers and Discussions in the Sections.—The addresses of the chairmen, which were referred to the sections for discussion, were practical and unusually valuable. Dr. Rochester, of Buffalo, in connection with epidemic zymotic diseases, urged the establishment of a system of national quarantine, which, though vigorously opposed by a minority, was sustained by the sentiment of the Section on Practical Medicine. Dr. Lewis, of New Orleans, Chairman of the Section on Obstetrics, gave an admirable summary of progress in his branch, and the application of antiseptics to gynæcology; he recommended extirpation of the uterus in cancer, removal of ovaries in Cæsarian section, and ergotine injections in uterine fibroids. The Surgical Section approved of the views expressed by their chairman, Dr. Moses Gunn, of Chicago, on the value of antiseptic system, and the vital origin of pus. Dr. Chaillé, in his annual address, appealed for the establishment of a sound system of State Medicine, in which the general government should regulate without necessarily interfering with any necessary powers of the State. He argued that it lay in the power of the American Medical Association to effect the reforms needed in the present condition

of State medicine. In England State medicine is easily and judiciously regulated by the influence of the British Medical Association on one central legislative power, while in America this power must be frittered away on the local legislatures of forty-eight States and Territories.

The address of Dr. H. Knapp, on the Progress of Ophthalmology, Otology, and Laryngology, was full of detail, but very interesting.

A number of papers, generally of practical character, were read in the different Sections.

The entertainments included a grand banquet, a number of receptions, and an excursion to Augusta, all of which appeared to be thoroughly enjoyed by the guests of Atlanta and her hospitable citizens.

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The National Board of Health. Meeting at Atlanta, Georgia.—An important session of this Board was held in Atlanta, commencing May 5, 1879, when it met by invitation a number of leading sanitarians from various parts of the country, including the members of the Sanitary Council of the Mississippi Valley.

The question of maritime quarantine being announced as the order of business for the first day, Dr. Vanderpoel, of New York, in an able address, opened the discussion, in which Drs. Cleemann, of Philadelphia, Howard, of Baltimore, Bemiss, of New Orleans, Greenville Dowell, of Texas, and others, participated.

Dr. Vanderpoel said that there never was a space of three days in the summer when there was not yellow fever in the port of New York, and yet it was kept out of the city by a thorough quarantine.

Dr. Chanceller, of Baltimore, read a paper opposing the opinion that quarantine is effective against yellow fever. The general sentiment of the meeting, however, was in favour of careful inspection of vessels arriving from infected ports, thorough fumigation and strict quarantine. The opinion was also expressed that quarantine should be continued throughout the year in Southern ports, or at least a much longer time than is needed at the North.

The second and third days of the session were devoted to the questions of river transportation; (*a*) how to secure for a steamer freedom from infection at New Orleans; and (*b*) how to deal with steamers at ports along the Mississippi and its tributaries; submitted by the Sanitary Council of the Mississippi Valley.

Dr. White, of New Orleans, stated that the only way he saw of preventing the infection of a vessel in the port of New Orleans was to prevent it from coming alongside an infected vessel. The law of Louisiana provides that an infected ship shall be at once removed from port to the quarantine station; so that ships rarely become infected from contact with infected ships in port. A ship that had been infected should be thoroughly cleaned, and the hold white-washed before she was allowed to go up the Mississippi.

Mr. Eicklehart, of Vicksburg, thought that an infected vessel should be sunk just below the hull for disinfection.

Dr. Chaillé, of New Orleans, remarked that if we accept the general belief that textile fabrics are a source of great danger in transmitting the fever, the great question is not what should be done with the hull of a vessel, but what measures should be taken that these materials shall not be transported to ports above?

Dr. Mitchell, of Tennessee, said that the only resource Tennessee had against the fever was to establish a total non-intercourse with infected ports; 99-100ths of the people believe in quarantine. It is humiliating to admit that this is the only preventive. A subject of great importance is to find means by which communication can be kept up with an infected port. Of all vessels of river navigation he looked upon the barge as one of the greatest sources of danger—on account of the usual nature of their cargoes, their peculiar construction, and their poor ventilation. In 1878, Memphis was infected from a barge, and doubtless again in the same manner last year. River commerce needs protection from this source of infection. Mr. Mitchell

also advocated the feasibility of a system of stations of inspection to be located along the Mississippi—so that it could be ascertained if a vessel became infected between ports. He was satisfied that total non-intercourse provided protection against infection, but that this preventive is an extreme one, and in itself undesirable.

Mr. Nash, of Norfolk, stated that during the epidemic in Richmond and Lynchburg, Norfolk kept up continual intercourse with these cities by transferring freight at Hampton Roads. He thought the same system might be practicable on the Mississippi River.

Dr. Rauch, of Illinois, supported the theory that the treatment of inland commerce should be analogous to that of foreign commerce; the prevention of the introduction of infectious diseases should be equally the object in both. Under ordinary circumstances a steamer should be examined at New Orleans before being allowed to go up the river; and in times of an epidemic, extra precautions should be taken. Stations should be located along the Mississippi for the care of the sick, and for the disinfection of vessels. The way passengers and crews are treated in time of an epidemic is barbarous. If the captain cannot land them in cities he lands them in swamps or anywhere along the river. Humanity demands a system of inland prevention as well as a foreign quarantine.

Dr. Pinckney Thompson, of Kentucky, stated that to his mind it was clear that yellow fever can be carried from place to place in textile fabrics, and the only thing to be done by up-river towns when fever is in New Orleans, is to prevent steamers from landing. There are but two resources remaining for these towns. One, to keep themselves in such a sanitary condition as to render the introduction of the yellow fever harmless; the other to insist that New Orleans keeps the yellow fever from her port just as New York does. When the fever is not in New Orleans, the towns along the river are always safe.

Dr. A. N. Bell, of New York, cited experiments that he had made in heat disinfection. He stated that thirty-one years ago he was called upon to take measures against the yellow fever on a schooner that came from a point where the disease had been raging two years. For three hours he steamed the ship under as intense heat as the boilers would give; then he thoroughly scraped and painted the vessel. A year later the ship went on a cruise in the worst fever ports of the West Indies, and no case of fever was developed on board. At the same time and place he treated a gunboat in the same manner, with the same results.

Some time later two boats were taken from the same squadron to New York, passed quarantine, but, though no cases of fever had been aboard for some months, the men engaged in remodelling them in a New York dock, were infected with the fever. These boats had not been disinfected by the steam process. Other experiments in steam disinfection which Dr. Bell has since made in person were cited, and though there have been some failures he attributes them to a lack of thoroughness in the process. Steam heat is preferable to dry heat, because the former can be used with less damage to goods.

In speaking of disinfectants, Dr. Bell denounced the idea that slaked lime is of any use, the quick-lime only is of value.

The next subject of discussion was the second memorandum from the Sanitary Council, on inland quarantine:—

Railroad—(*a*) Sanitary condition of depots and stations. (*b*) Quarantine stations on railroads, their position and organization; specify for passenger trains, sleeping cars, car construction, freight trains, construction trains. (*c*) Mails. (*d*) Expressage.

Dr. Kedzie offered the following:

Resolved, That the depots and stations of railroads and their surroundings should be kept in a sanitary condition, free from all stagnant water and decomposing organic matter; the local railroad agent or official should daily inspect the water closets, and cause the floor, seats and urinals of such water closets to be kept clean; the vaults to be emptied at least every three months, and from the 1st of May to the 1st of November, the privy

vaults to be disinfected every week, by pouring into every vault a solution of twenty to fifty pounds of sulphate of iron or sulphate of zinc, or ten to fifteen pounds of chloride of lime.

This resolution was approved.

Dr. Kedzie said that fever often germinated in the North from causes that the resolution does away with. Germs of disease from decomposition often are carried in the air to a distance. Cholera may be propagated in the same way.

Dr. Howard spoke of the relation of railway travel to the yellow fever question. On his way to the fever district last summer, he entered a sleeper, in company with other persons, in which he was positively assured there had been no fever. Soon afterwards he learned that there had been dozens of cases aboard the car. When they arrived in Mississippi a man in the car was attacked with the fever. They bundled him up in the fever-infected blankets of the car, and put him in a fever-infected berth. The engineer was soon attacked and treated in the same way. Soon afterwards a lady in the car showed unmistakable symptoms of the disease; she also was cared for in the same manner. This car, at its destination, was immediately sent back on a trip to Cincinnati. The doctor cited other instances of similar scenes from his own experience.

Dr. Kedzie here offered resolutions upon the ventilation of cars, as follows:—

"All railroad cars should at all times be well ventilated; the freight cars when loaded should have barred doors to permit the free entrance of air at all times whether moving on the track or placed upon the sidings; the passenger and sleeping cars should be provided with automatic ventilators, so as to secure a rapid change of air in the cars at all times.

"The upholstering of all passenger and sleeping cars, including the cushions of seats and mattresses and sleepers, shall at least twice a week, and in the open air, as far as possible, be thoroughly whipped and brushed, and the blankets and curtains of sleepers shall be whipped and sunned thrice weekly.

"In case of infection of a car or sleeper, the bedding, mattresses, and all the upholstering shall be thoroughly disinfected before it is permitted to be again used."

In regard to the final queries as to what should be the system of notification of the occurrence of the first cases of a dangerous disease, and when it is proper to say that yellow fever is epidemic in a town, it was decided that these queries had been already discussed and answered by State and local authorities.

The final session of the National Board of Health was held at the Kimball House on Thursday, May 9th, President Cabell in the chair.

Dr. Rauch, Secretary of the Sanitary Council of the Mississippi Valley, requested, before the regular routine of business was entered upon, to be permitted to report to the Board a series of propositions which had been adopted by the Sanitary Council on the preceding evening. The propositions were read and left with the National Board of Health for future consideration. A plan—the arrangement of which had sometime ago been referred to a committee—was then adopted, securing co-operation between the National Board of Health, the Sanitary Council of the Mississippi Valley and the American Public Health Association, in collating knowledge of the actual sanitary condition of every city in the United States, particularly in the Southwestern States along the Mississippi River. It is designed to ascertain as far as possible everything that will tend to affect the sanitary condition, whether for good or evil, of the various cities—the systems of sewerage, the condition of vaults, and the disposition that is made of refuse matter, and from these data to compile the best sanitary regulations, and correct existing abuses.

After adopting these measures the National Board of Health agreed to meet in convention at Nashville on the 8th of November. From this it is not to be understood that the National Board of Health has literally adjourned until that date; they will, on the other hand, hold session during the entire summer. The report of the debates and proceedings at

this the Atlanta convention, together with the proposition reported to the Board by the Sanitary Council, will be thoroughly discussed. From these discussions will be ascertained, as far as possible, the best sanitary measures for the prevention as well as the eradication of epidemics; these results when obtained will be furnished to local and State sanitary bodies. Then the Board will meet in Nashville, there to hold a conference similar to the one just held in Atlanta, with leading sanitarians invited from every quarter of the union. Should the Board obtain an appropriation of six hundred and fifty thousand dollars from Congress, as they desire, they will be enabled themselves to put into effect the results of their deliberations; but with their present means they can only accumulate knowledge, deduce sanitary measures from it, and refer them to local and State authorities to be put into effect.

The Sanitary Council of the Mississippi Valley and the American Health Association have also agreed to meet in Nashville on the 8th of November.

—

The Convention of American Medical Colleges.—The advocates of reform in medical education, at the last meeting of the American Medical College Association succeeded in passing a resolution calling for a general convention of American medical colleges, in order to have an opportunity of obtaining the opinions of colleges not members of this association, in regard to the practicability of elevation of the standard of requirements for graduation. In conformity with this, a call was issued for representatives from each board of trustees, as well as every accredited college faculty, to meet in convention in Atlanta, May 1st, 1879.

By creating a commission with power to act, it was hoped that some decisive measures would be adopted that would be of great influence in advancing the standard of medical instruction, and making it more thorough and complete.

Prof. Gross was called to the chair, when the committee on credentials announced that only 24 out of 59 colleges were represented.

After discussion, a committee was appointed, which presented two propositions for the consideration of the convention:—

First. That all medical colleges should require attendance upon three regular courses of lectures during three separate years, before admitting students to become candidates for the degree of M.D.

Second. That the medical colleges should require, before admitting to matriculation, a preliminary examination, such examination to embrace, at least, the elements of the physical sciences in addition to a fair English education.

These propositions were adopted and ordered to be transmitted to the meeting of the American Medical College Association the next day. The convention then adjourned *sine die*.

—

The Association of American Medical Colleges.—The third annual session of this association was held in Atlanta, May 3d, 1879.

Dr. N. S. Davis announced the death of the President of the association, Dr. John B. Biddle, of Jefferson Medical College, and spoke in fitting terms of the loss the association, the profession, and the community had sustained in the death of this distinguished physician.

Resolutions expressing the sentiments of the association were subsequently adopted.

The following amendment to the by-laws was adopted: "Every college member and every affiliated college shall print each year a true list of matriculants of the college for the year, and their preceptors, or the names of the colleges at which the matriculants have graduated (in the cases of those matriculants who are graduates), and every such college shall also print a true list of the graduates for the year."

It was stated that the object of this section is to provide that every member of the association shall have means of information with regard to the matriculants, their preceptors, and the graduates of each college.

The charges against the Louisville Medical College were dismissed, as being defective in form, and, moreover, the

course at this school had been changed so as to obviate any objection.

The Committee on Registration announced that the fifty-nine regular medical colleges in the United States graduated in 1878, 2708 students. Twenty-eight colleges are members of this association.

The Secretary announced the voluntary withdrawal of Dartmouth College, because it could not lengthen its term.

A resolution, that gratuitous instruction to medical students by any member of the association, except as provided by law, be declared unlawful, was adopted.

The communication containing the propositions from the Convention of Medical Colleges was read, and was laid over for one year. The following amendment was also laid over: "Resolved, That the majority of the members of one faculty shall not constitute the majority of the members of another faculty, unless the sessions of the two schools are held simultaneously."

Professor Chaillé called from the table the following: "Resolved, That it shall be considered derogatory to the dignity and good standing of any medical college represented in this association, to advertise, in any other than a strictly medical publication, the names of its professors, with their respective chairs."

(This does not apply to the annual circulars and catalogues issued by the colleges, but to advertising in newspapers and other like publications, in which only a card calling attention to the advantages of the school, length of session, fees, etc., with the name of the executive officer or secretary appended, should be permitted.)

After full discussion, the resolution was adopted.

Professor Chaillé also offered the following amendment to the articles of confederation: "No college shall advertise in any other than a strictly medical publication the names of its professors, with their respective chairs."

The amendment was seconded, and laid on the table till next year.

Prof. S. D. Gross was elected President of the Association; Prof. N. S. Davis, Vice-President; and Prof. Leartus Connor, Secretary and Treasurer.

Place of meeting, in 1880, New York; time, the Friday before the meeting of the American Medical Association.

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The Association of American Medical Editors.—On the evening before the meeting of the American Medical Association, this body held its eleventh annual session. Dr. Brodie presented a resolution condemning the advertising of patent medicines by medical journals, as opposed to the spirit of the code of ethics. An amendment to the constitution, admitting authors to membership, was laid over until next session. Dr. Parvin announced the death of Dr. Isaac Hays, and paid a warm tribute to his industry and ability. He also reported the death of Dr. Waddell, and asked that a committee be appointed to frame appropriate resolutions, which was unanimously adopted.

The following officers were chosen for the ensuing year: for President, Dr. Thomas S. Powell (Atlanta), of the *Southern Medical Record;* for Vice-President, Dr. Frank Woodbury (Philadelphia), of the *Boston Med. and Surg. Journal;* Secretary and Treasurer, Dr. Frank H. Davis, of Chicago. Next place of meeting New York, on the evening before the first Tuesday in June, 1880. A dinner was given to the Association on May 7th, by the editors of the *Southern Medical Record*, at which nearly all of the editors were present.

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Medical College of Ohio.—Dr. Roberts Bartholow, in consequence of his intended removal to Philadelphia, has resigned the chair of Theory and Practice of Medicine in this institution, and Dr. James T. Whittaker has been elected to the vacant professorship.

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Chicago Medical College.—Prof. Edward W. Jenks, of the Detroit Medical College, has accepted the chair of Gynæcology, in the Chicago Medical College, and will shortly remove to Chicago.

—

University of Maryland.—Dr. I. Edmondson Atkinson, of Baltimore, has recently been elected Clinical Professor of Dermatology in the University of Maryland.

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